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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/071,951	MUPPIDI ET AL.	
	Examiner	Art Unit	
	Shi K. Li	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-16 and 20-54* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-16 and 20-54* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Introductory Comments

1. In the Decision on Appeal dated 11 March 2008, the Board of Patent Appeals and Interferences have sustained the Examiner's rejections with respect to claims 1, 2, 4-16, 20-28 and 40-45. The Board of Patent Appeals and Interferences have not sustained the Examiner's rejection of claims 29-39. Prosecution on the merits is hereby reopened. Prosecution has been reopened to present new rejections of claims 29-39.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-2, 4-13, 20-25, 40-43, and 47-50 are rejected under 35 U.S.C. 102(e) as being anticipated by DeVette (U.S. Patent No. 6,718,141 B1).

Regarding claim 1, DeVette teaches a method to determine configuration information associated with an optical network having a plurality of optical nodes coupled by Optical fiber spans (col. 4, lines 31-34), the method comprising: discovering at least one neighboring optical nodes (col. 2, lines 35-39), each neighboring optical node being coupled by a single optical span having at least one optical fiber (col. 4, lines 33-34); each node publishing at least one neighboring node to the network (col. 4, lines 40-60); and each node of said plurality of optical nodes determining a network configuration having a topological map of network links

corresponding to the discovered neighboring optical nodes (col. 2, lines 44-49; see also col. 22, lines 42-54 and Table 1 in col. 14 - each node issues a connectivity report reflecting the topology of the node and its upstream discovered neighboring nodes; i.e. - the issuing of the connectivity report reflecting network topology is considered "determining a network configuration").

Regarding claim 2, DeVette teaches generating an alarm signal indicative of a network configuration error responsive to detecting an error between the network configuration and a planned configuration (col. 28, lines 25-27; see also col. 22, lines 55-65 and col. 20, lines 54-67).

Regarding claim 4, DeVette teaches correlating information from each node to isolate the location of a configuration error (col. 3, lines 33-41).

Regarding claim 5, DeVette teaches that discovering at least one neighboring optical node comprises: each node receiving node identification messages from adjacent nodes that includes a unique source node identifier (col. 19, lines 30-40).

Regarding claim 6, DeVette teaches that each node publishes at least one node configuration attribute to the network (col. 2, lines 55-57: each node can have a processor which generates configuration data and publishes it).

Regarding claim 7, DeVette teaches each node forming an information model of the optical network (col. 2, lines 55-56: configuration data is considered the information model) and each node determining a network configuration having an arrangement of neighboring nodes consistent with the information model of the node (col. 2, lines 55-65; see also col. 22, lines 43-54 – the issuing of the connectivity report reflecting network topology is considered "determining a network configuration").

Regarding claim 8, DeVette teaches that each node generates an alarm signal indicative of a network configuration error responsive to the node detecting an error in the network configuration (col. 28, lines 25-27).

Regarding claim 9, DeVette teaches correlating the alarm signals of the nodes to isolate a location of a configuration error (col. 3, lines 33-41).

Regarding claim 10, DeVette teaches forming an information model of the optical network (col. 2, lines 55-56: configuration data is considered the information model) and determining a network configuration having an arrangement of neighboring nodes consistent with the information model of the node (col. 2, lines 55-65).

Regarding claim 11, DeVette teaches the issuing an error correction command responsive to determining that the network configuration differs from a planned configuration (col. 28, lines 25-27).

Regarding claim 12, DeVette teaches that the information model includes the identity of each span interface coupling neighboring nodes (col. 19, lines 30-40).

Regarding claim 13, DeVette teaches that the error is a fiber misconnection error and an alarm signal is issued responsive to determining incorrectly connected optical fibers (col. 2, lines 1-5 and lines 35-38).

Regarding claim 20, DeVette teaches each node forming an information model of the optical network (col. 2, lines 55-56: configuration data is considered the information model) and each node determining a network configuration having an arrangement of neighboring nodes consistent with the information model of the node (col. 2, lines 55-65; see also Table 1 in col. 14; col. 22, lines 42-45).

Regarding claim 21, DeVette teaches that each node generates an alarm signal indicative of a network configuration error responsive to the node detecting an error in the network configuration (col. 28, lines 25-27; see also col. 25, lines 11-27).

Regarding claim 22, DeVette teaches correlating the alarm signals of the nodes to isolate a location of a configuration error (col. 3, lines 33-41).

Regarding claim 23, DeVette teaches forming an information model of the optical network (col. 2, lines 55-56: configuration data is considered the information model) and determining a network configuration having an arrangement of neighboring nodes consistent with the information model of the node (col. 2, lines 55-65).

Regarding claim 24, DeVette teaches that the information model includes the identity of each span interface (the span interface is fiber) coupling neighboring nodes (col. 19, lines 30-40).

Regarding claim 25, DeVette teaches that the error is a fiber misconnection error and an alarm signal is issued responsive to determining incorrectly connected optical fibers (col. 2, lines 1-5 and lines 35-38).

Regarding claim 40, DeVette teaches a plurality of optical nodes, each node having at least one neighbor node which is coupled to it by an optical span (101-122 of fig. 1); each node having an inter-node communication module to communicate with the other nodes of the network (124 of fig. 1: the fiber is an "inter-node communication module" in that it is for communicating with neighbor nodes on an inter-node data channel); each node configured to identify itself to its neighbors and to publish the identity of its neighbors to the optical network (col. 19, lines 30-40; col. 4, lines 45-55; see Table 1 in col. 14 and col. 16-17: each node publishes its own status and the status of the nodes from the received signal); and at least one .of

the nodes configured to form a model of the network configuration from published neighbor information (col. 4, lines 41-43; CNM 123 of fig. 1 is part of node 101 - see col. 6, lines 47-49).

Regarding claim 41, DeVette teaches that at least one of the nodes is configured to issue an alarm signal responsive to the network configuration being different from a provisioned network configuration (col. 28, lines 25-27).

Regarding claim 42, DeVette teaches that each node publishes a node identifier and at least one node attribute to its neighbors and the model of the network includes the at least one node attribute (col. 19, lines 30-40; col. 4, lines 41-55).

Regarding claim 43, DeVette teaches that at least one of the nodes is configured to issue an alarm responsive to the network configuration being different from a provisioned network configuration (col. 28, lines 25-27).

Regarding claim 47, DeVette teaches an optical transport complex for adding, dropping, and passing through optical channels (fig. 1; col. 6, lines 35-39); and an administrative complex for administering the optical transport complex (123 of fig. 1: central network monitor; Abstract, lines 21-25) and having a memory adapted to receive provisioning data for the optical transport complex (fig. 7a; col. 6, lines 1-4)

Regarding claim 48, DeVette teaches an element management system (Abstract, lines 21-25: central network monitor) coupled to receive the model of the network configuration and issuing an error correction command responsive to determining a network configuration error (col. 12, lines 43-48).

Regarding claim 49, DeVette teaches that the error correction command comprises provisioning at least one of the nodes (col. 12, lines 43-48).

Regarding claim 50, DeVette teaches that the error correction command is an instruction to alter a node component (col. 12, lines 43-48).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 14-16, 26-28 and 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeVette (U.S. Patent No. 6,718,141 B1).

Regarding claims 14-16, 26-28 and 44-46, DeVette teaches the limitations of claims 2, 23 and 43, but does not specifically disclose that the error is due to an incompatible node type, setting, or parameter. However, Examiner takes official notice that errors from incompatible node types, settings and parameters exist and alerting a configuration system or a technician when such errors occur is well known in the art. It would have been obvious to one of ordinary skill in the art at the time of invention to issue an incompatible node type, setting, or parameter alarm in order to correct the problem and maintain a functional network configuration.

6. Claim 29 is rejected under 35 U.S.C. 102(e) as anticipated by Robidas et al. (U.S. Patent Application Pub. 2003/0031177 A1) or, in the alternative, under 35 U.S.C. 103(a) as obvious over Robidas et al. (U.S. Patent Application Pub. 2003/0031177 A1) in view of Moy (J. Moy, RFC 2178, "OSPF Version 2", IETF, July 1997).

Regarding claim 29, Robidas et al. teaches in FIG. 2 a network comprising three optical nodes. Robidas et al. teaches in paragraphs [0042] through [0045] peer discovery where each

node discovers its neighbors connected to each of its trunks. Each node sends source node identification (e.g., router ID of the node) and node configuration data (e.g., optical routing parameters, port number and OSPF area ID) to its neighbor. The node receiving the parameter ensures the optical routing parameters are consistent before notifying optical routing. Robidas et al. does not expressly teach the step of publishing. However, as Robidas et al. discussed in the background of the invention section, the collection of the neighbor information is for supporting OSPF. Inherently, OSPF requires each node to broadcast neighbor information to the network.

Even if the Applicant is not convinced that the publishing step is inherently taught by Robidas et al., it would have been obvious for one of ordinary skill in the art at the time of the invention to combine Robidas et al. with OSPF. Moy documents the OSPF as an industrial standard. Moy teaches in Section 4 (page 34) that a router periodically advertises its state, which is also called link state. Link state contains link state advisement (LSA) (see page 9) which includes neighbor information. One of ordinary skill in the art would have been motivated to combine the teaching of Moy with the optical network of Robidas et al. as suggested by Robidas et al. because the OSPF protocol identifies a traffic path having less cost (see paragraph [0002] of Robidas et al.). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to advertise neighbor information to the network, as taught by Moy, in the optical network of Robidas et al. because the OSPF protocol identifies a traffic path having less cost.

7. Claims 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over deVette (U.S. Patent 6,718,141 B1) in view of Obeda et al. (U.S. Patent 6,968,131 B2).

Regarding claim 29, deVette teaches a method to determine configuration information associated with an optical network having a plurality of optical nodes coupled by optical fiber spans (col. 4, lines 31-34), the method comprising: sending identification messages to downstream neighboring nodes (col. 4, lines 40-60), each identification message including a source node identifier and node configuration data (col. 19, lines 30-40); for each node, publishing the identity of the node, the identity of its neighbors (see Table 1 in col. 14, and note also that the configuration data circulates downstream to each node; see also col. 15, lines 33-55; for detailed description of this circulation process, see col. 16, line 44 to col. 17, line 31), and the node Configuration data associated with the node (col. 4, lines 40-48; fig. 6B); and determining a network configuration consistent with the published node information (col. 4, lines 41-43). The difference between deVette and the claimed invention is that deVette sends identification messages to downstream neighboring nodes. However, deVette teaches in col. 6, lines 54-66 that while the example given in FIG. 1 and FIG. 2 discloses uni-directional propagation path, most practical telecommunications services require bi-directional communications and a complementary network with light propagating in the opposite direction is typically installed with shared resources. To strengthen the rejection, the Examiner cites Obeda et al. for teaching bidirectional connection between nodes in an optical network. Obeda et al. teaches in FIG. 1 a network with three nodes: node A, node B and node C. It is clear from FIG. 1 that the nodes are connected such that each pair of neighbor nodes can transmit signals to each other. One of ordinary skill in the art would have been motivated to combine the teaching of Obeda et al. with the optical network of deVette because most practical telecommunications services require bi-directional communications. Thus it would have been obvious to one of ordinary skill in the art

at the time the invention was made to provide bidirectional communications between two neighbor nodes, as taught by Obeda et al., in the optical network of deVette because most practical telecommunications services require bi-directional communications.

Regarding claim 30, Obeda et al. teaches in col. 7, lines 9-11 generating alarms in the event that errors or faults are determined from the discovery topology.

8. Claims 30-31 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Robidas et al. and Moy as applied to claim 29 above, and further in view of Lang et al. (Lang et al, "Link Management Protocol (LMP)", draft-ietf-mpls-lmp-0.2.txt, IETF, June 2001) and Obeda et al. (U.S. Patent 6,968,131 B2).

Robidas et al. and Moy have been discussed above in regard to claim 29. The difference between Robidas et al. and Moy and the claimed invention is that Robidas et al. and Moy do not teach protection type. Lang et al. teaches on page 11, Section 4 link property correlation. In particular, Lang et al. teaches on page 11, last paragraph that the LinkSummary message includes protection definition and on page 49 the protection type field. One of ordinary skill in the art would have been motivated to combine the teaching of Lang et al. with the modified optical network of Robidas et al. and Moy because compatible protection scheme allows appropriate protection/restoration mechanisms to be initiated when failure is detected and customer traffic to be resumed with minimal interruption. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to exchange protection information and to accept or reject such protection information, as taught by Lang et al., in the modified optical network of Robidas et al. and Moy because compatible protection scheme

allows appropriate protection/restoration mechanisms to be initiated when failure is detected and customer traffic to be resumed with minimal interruption.

The combination of Robidas et al., Moy and Lang et al. still fails to teach generating an alarm signal when an error in the network configuration has been detected. Obeda et al. teaches in col. 7 that warnings or alarms are provided to network operator in the event that errors or faults are determined from the discovery topology. One of ordinary skill in the art would have been motivated to combine the teaching of Obeda et al. with the modified optical network of Robidas et al., Moy and Lang et al. because an alarm alerts network operator to take actions for correcting the error so that the network can operate properly. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to generate alarm signal when error condition is detected, as taught by Obeda et al., in the modified optical network of Robidas et al., Moy and Lang et al. because an alarm alerts network operator to take actions for correcting the error so that the network can operate properly.

Regarding claim 34, Lang et al. teaches in Section 5 verifying link connectivity for determining incorrectly connected fibers.

9. Claims 31 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over deVette and Obeda et al. as applied to claims 29-30 above, and further in view of Lang et al. (Lang et al, "Link Management Protocol (LMP)", draft-ietf-mpls-lmp-0.2.txt, IETF, June 2001).

deVette and Obeda et al. have been discussed above in regard to claims 29-30. The difference between deVette and Obeda et al. and the claimed invention is that deVette and Obeda et al. do not teach protection type. Lang et al. teaches on page 11, Section 4 link property correlation. In particular, Lang et al. teaches on page 11, last paragraph that the LinkSummary

message includes protection definition and on page 49 the protection type field. One of ordinary skill in the art would have been motivated to combine the teaching of Lang et al. with the modified optical network of deVette and Obeda et al. because compatible protection scheme allows appropriate protection/restoration mechanisms to be initiated when failure is detected and customer traffic to be resumed with minimal interruption. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to exchange protection information and to accept or reject such protection information, as taught by Lang et al., in the modified optical network of deVette and Obeda et al. because compatible protection scheme allows appropriate protection/restoration mechanisms to be initiated when failure is detected and customer traffic to be resumed with minimal interruption.

Regarding claim 34, Lang et al. teaches in Section 5 verifying link connectivity for determining incorrectly connected fibers.

10. Claims 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Robidas et al., Moy, Lang et al. and Obeda et al. as applied to claims 30-31 above, and further in view of Au et al. (U.S. Patent 7,110,670 B1).

Robidas et al., Moy, Lang et al. and Obeda et al. have been discussed above in regard to claims 32-33. The difference between Robidas et al., Moy, Lang et al. and Obeda et al. and the claimed invention is that Robidas et al., Moy, Lang et al. and Obeda et al. do not teach determining incompatible node setting. Au et al. teaches in FIG. 1 a phonics network. Au et al. teaches in col. 3, lines 38-43 that nodes exchange control message via an optical supervisory channel (OSC). Au et al. teaches in FIG. 6 that when nodes are connected, their compatibility is determined (see step E). One of ordinary skill in the art would have been motivated to combine

the teaching of Au et al. with the modified optical network of Robidas et al., Moy, Lang et al. and Obeda et al. because incompatible nodes cannot be connected together. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to determine compatibility of nodes that are connected together, as taught by Au et al., and to generate alarms if nodes are incompatible, as taught by Obeda et al., in the modified optical network of Robidas et al., Moy, Lang et al. and Obeda et al. because incompatible nodes cannot be connected together.

11. Claims 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over deVette and Obeda et al. as applied to claims 29-30 above, and further in view of Au et al. (U.S. Patent 7,110,670 B1).

deVette and Obeda et al. have been discussed above in regard to claims 32-33. The difference between deVette and Obeda et al. and the claimed invention is that deVette and Obeda et al. do not teach determining incompatible node setting. Au et al. teaches in FIG. 1 a phonics network. Au et al. teaches in col. 3, lines 38-43 that nodes exchange control message via an optical supervisory channel (OSC). Au et al. teaches in FIG. 6 that when nodes are connected, their compatibility is determined (see step E). One of ordinary skill in the art would have been motivated to combine the teaching of Au et al. with the modified optical network of deVette and Obeda et al. because incompatible nodes cannot be connected together. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to determine compatibility of nodes that are connected together, as taught by Au et al., and to generate alarms if nodes are incompatible, as taught by Obeda et al., in the modified optical network of deVette and Obeda et al. because incompatible nodes cannot be connected together.

12. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Robidas et al. and Moy as applied to claim 29 above, and further in view of Battou et al. (U.S. Patent 7,013,084 B2).

Robidas et al. and Moy have been discussed above in regard to claim 29. The difference between Robidas et al. and Moy and the claimed invention is that Robidas et al. and Moy do not teach command to alter the optical network configuration. Battou et al. teaches in col. 43, lines 34-37 that CLI or NMS command can be used for changing configuration. One of ordinary skill in the art would have been motivated to combine the teaching of Battou et al. with the modified optical network of Robidas et al. and Moy to change the network configuration using CLI or NMS command if the current configuration is not a desired configuration because using software to configure network is fast and cost effective. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use CLI or NMS command to change network configuration, as taught by Battou et al., in the modified optical network of Robidas et al. and Moy because using software to configure network is fast and cost effective.

13. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over deVette and Obeda et al. as applied to claims 29-30 above, and further in view of Battou et al. (U.S. Patent 7,013,084 B2).

deVette and Obeda et al. have been discussed above in regard to claim 29. The difference between deVette and Obeda et al. and the claimed invention is that deVette and Obeda et al. do not teach command to alter the optical network configuration. Battou et al. teaches in col. 43, lines 34-37 that CLI or NMS command can be used for changing configuration. One of ordinary skill in the art would have been motivated to combine the teaching of Battou et al. with

the modified optical network of deVette and Obeda et al. to change the network configuration using CLI or NMS command if the current configuration is not a desired configuration because using software to configure network is fast and cost effective. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use CLI or NMS command to change network configuration, as taught by Battou et al., in the modified optical network of deVette and Obeda et al. because using software to configure network is fast and cost effective.

14. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chaudhuri et al. (U.S. Patent 7,039,009 B2) in view of Moy (J. Moy, RFC 2178, "OSPF Version 2", IETF, July 1997).

Regarding claim 36, Chaudhuri et al. teaches in FIG. 1 an optical network comprising a plurality of network nodes. Chaudhuri et al. teaches in col. 21, lines 36-40 that each node stores information about optical lightpaths which are passing through, sourced (added) or destined (dropped) to the node. Chaudhuri et al. teaches in col. 6, lines 47-53 mediation device, equivalent to administrative complex of instant claim, for controlling the node. Chaudhuri et al. teaches in col. 21, lines 36-37 that this information is stored locally. This implies a memory for storing the provisioning data. Chaudhuri et al. teaches in col. 20, lines 58-62 neighbor discovery and the distribution of topology information to the rest of the network using standard routing algorithm (e.g., OSPF as taught in col. 7, lines 1-24). The difference between Chaudhuri et al. and the claimed invention is that Chaudhuri et al. does not teach the details of OSPF such as exchanging node identification and configuration data. Moy documents the OSPF as an industrial standard. Moy teaches in Section 7.1 (page 44) that neighbors exchange hello packets

and in Section A.3.2 (page 166) the details of the hello packets which include node identification (router ID) and configuration data (e.g., neighbors). Neighbors also exchange databases about the network configuration (see Section 7.2, page 45). One of ordinary skill in the art would have been motivated to combine the teaching of Moy with the optical network of Chaudhuri et al. as suggested by Chaudhuri et al. because the OSPF protocol identifies a traffic path having minimal cost. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to advertise neighbor information to the network, as taught by Moy, in the optical network of Chaudhuri et al. Note that neither Chaudhuri et al. nor Moy expressly teaches inter-node module and configuration discovery module. However, the combination of Chaudhuri et al. and Moy teaches the functions performed by these modules and the division of hardware/software into modules is a logical concept that does not carry patentable weight.

15. Claims 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chaudhuri et al. and Moy as applied to claim 36 above, and further in view of Lau et al. (U.S. Patent Application Pub. 2003/0145069 A1) and Obeda et al. (U.S. Patent 6,968,131 B2).

Chaudhuri et al. and Moy have been discussed above in regard to claim 36. Regarding claim 37, the difference between Chaudhuri et al. and Moy and the claimed invention is that Chaudhuri et al. and Moy do not teach a configuration analysis module. Lau et al. teaches configuration verification. In particular, Lau et al. teaches in FIG. 6 a module for verifying network configuration with the provisioning database. One of ordinary skill in the art would have been motivated to combine the teaching of Lau et al. with the modified optical network of Chaudhuri et al. and Moy because an automated verification system discovers and reports errors so that corrective actions can be taken to ensure consistency of the configuration with the

provisioning. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a verification module, as taught by Lau et al., in the modified optical network of Chaudhuri et al. and Moy because a automated verification system discovers and reports errors so that corrective actions can be taken to ensure consistency of the configuration with the provisioning.

The combination of Chaudhuri et al., Moy and Lau et al. still fails to teach an alarm generator. Obeda et al. teaches in col. 7 that warnings or alarms are provided to network operator in the event that errors or faults are determined from the discovery topology. One of ordinary skill in the art would have been motivated to combine the teaching of Obeda et al. with the modified optical network of et al., Moy and Lau et al. because an alarm alerts network operator to take actions for correcting the error so that the network can operate properly. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to generate alarm signal when error condition is detected, as taught by Obeda et al., in the modified optical network of et al., Moy and Lau et al. because an alarm alerts network operator to take actions for correcting the error so that the network can operate properly.

Regarding claim 38, Lau et al. teaches in FIG. 5 node identifier 502.

Regarding claim 39, Obeda et al. teaches in col. 7 that warnings or alarms are provided to network operator in the event that errors or faults are determined from the discovery topology.

16. Claims 51-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeVette (U.S. Patent No. 6,718,141 B1) in view of Elliott (U.S. Patent No. 6,456,599).

Regarding claims 51 and 54, DeVette teaches an optical network, comprising: a plurality of optical nodes coupled by optical spans (101-122 of fig. 1), each node including an inter-node

communications capability to communicate messages with neighboring nodes (optical fiber); neighbor discovery means for discovering the identity of neighboring nodes to identify at least two neighboring nodes (col. 2, lines 35-38 and lines 60-65; see Table 1 in Col. 14); configuration analysis means for determining a configuration of the optical network having a topology map corresponding to a relationship between the neighboring nodes (col. 2, lines 46-49; 123 of fig. 1); and alarm means for generating an alarm signal indicative of a configuration error (col. 28, lines 25-27). DeVette does not expressly disclose that the neighbor discovery means transmits signals in opposite directions to discover the neighboring nodes. However, DeVette does disclose that bidirectional communication is usually necessary in most telecommunication applications, especially in long-haul networks (col. 6, lines 58-65) and that multiple configuration signals can propagate simultaneously (col. 14, lines 25-28). Elliott, from a similar field of endeavor, teaches a communication network implementing a neighbor discovery means (see Abstract), wherein a node transmits signals in opposite directions to discover neighboring nodes (col. 8, lines 35-60). If the network was operating under bidirectional communications (e.g. - a long-haul network, as suggested by DeVette), a skilled artisan would have been motivated to implement a bidirectional neighbor discovery means in order to gather network information more efficiently. It would have been obvious to a skilled artisan at the time of invention to implement the bidirectional neighbor discovery means of Elliot in the node of DeVette in order to map network topology rapidly and effectively.

Regarding claim 52, DeVette teaches that the neighbor discovery means is configured to publish neighbor information to the network (col. 4, lines 42-50).

Regarding claim 53, DeVette teaches that each node further publishes at least one additional node attribute to at least one other node (col. 4, lines 40-50).

Response to Arguments

17. Applicant's arguments in the Appeal Brief filed 12 October 2006 with respect to claims 1-2, 4-16, 20-28 and 40-54 have been considered but are not persuasive as explained in the Decision on Appeal dated 11 March 2008.

18. Applicant's arguments with respect to claims 29-39 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 571 272-3031. The examiner can normally be reached on Monday-Friday (7:30 a.m. - 4:30 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/VALENCIA M MARTIN WALLACE/
Director, Technology Center 2600

skl
18 June 2008